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OZONE ANALYZER INTERCOMPARISON
Thermo 49iPS_ACTRIS CM21267121


intercomparison place : Monte Cimone
intercomparison operator: Paolo Cristofanelli, Francescopiero Calzolari
Transfer Standard: Thermo 49iPs s/n: 1404860524
Transfer Standard has been evaluated by ENPA on 1900-01-01 with SRP#15 giving
slope of 1.000 and intercept of -0.3
TS has been warmed-up for more then 12 hours and OA has been conditioning at
200ppb for more then 2 hour
OA has been evaluated at the following 9 concentration levels: 0, 15, 25, 50,
75, 80, 100, 125 e 150 ppb


OA and TS condition:
OA CM21267121 BKG=0.0 ; Coeff=1.017
TS 1404860524 BKG=-0.3 ; Coeff=1.000
intercomparison start : 2023-11-29 16:43:00 ; intercomparison end : 2023-11-30
00:01:00
LinregressResult(slope=0.9651331299770425, intercept=0.20821173424201334,
rvalue=0.9999983580018763, pvalue=1.4543667701591517e-53,
stderr=0.000401247448966834, intercept_stderr=0.03461363350853008)


Linear regression results OAmean = TSmean*slope + intercept:
TS Transfer Standard
OA O3 Analizer

slope        = 0.965133       slope_stderr        = 4.012e-04
intercept    = 0.208212       intercept_stderr    = 3.461e-02
rsquare      = 0.999997       covariance          = -8.205e-22


TSmean: TS average [O3] for each calibration step
OAmean: OA average [O3] for each calibration step
Predicted = OAmean*slope + intercept
TSstd: TS standard deviation [O3] for each calibration step
OAstd: OA standard deviation [O3] for each calibration step
Residual = TS - predicted
Deviation = OA - TS
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TSmean	TSstd	OAmean	OAstd	predicted	residual	deviation
0.011	0.086	-0.120	0.211	0.093	-0.082	-0.130
74.710	0.124	76.978	0.209	74.503	0.207	2.268
149.706	0.132	155.056	0.283	149.858	-0.151	5.349
124.670	0.101	129.097	0.181	124.804	-0.134	4.427
24.684	0.091	25.304	0.226	24.630	0.053	0.621
99.703	0.085	103.143	0.283	99.755	-0.052	3.440
79.717	0.052	82.382	0.160	79.717	-0.001	2.665
49.730	0.120	51.270	0.134	49.691	0.039	1.540
15.200	0.721	15.507	0.758	15.175	0.025	0.307
99.720	0.083	103.001	0.202	99.618	0.102	3.281
149.736	0.153	154.973	0.151	149.778	-0.041	5.236
0.007	0.058	-0.131	0.175	0.082	-0.075	-0.138
49.699	0.053	51.328	0.222	49.747	-0.048	1.629
24.742	0.070	25.392	0.132	24.715	0.027	0.650
99.709	0.121	102.996	0.282	99.613	0.096	3.287
124.654	0.135	128.967	0.249	124.678	-0.024	4.312
14.689	0.108	15.061	0.195	14.744	-0.055	0.372
74.724	0.062	77.121	0.200	74.640	0.084	2.397
99.693	0.076	102.969	0.261	99.587	0.106	3.276
79.708	0.097	82.362	0.197	79.699	0.009	2.655
0.042	0.156	-0.082	0.138	0.129	-0.087	-0.124

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Unoise: OAstd average                             = 0.231
Ulinearity: Residual standard deviation           = 0.089
Urepeat = sqrt(Unoise^2 + Ulinearity^2)           = 0.247
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Udrift = sqrt(0.58^2+(0.0025*C)^2)                        = 0.632
U = sqrt(Urepeat^2+Udrift^2)                              = 0.678
C                                                         = 100.0
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compensation equation to obtain unbiased concentration
[O3unbiased]=([OA]*0.965)+0.208

Intercomparison 49iPS_ACTRIS s/n CM21267121 date : 20231130